Complete if Known 10/574,967 **Application Number** NFORMATION DISCLOSURE May 24, 2007 Filing Date STATEMENT BY APPLICANT Jonathan Miles BROWN First Named Inventor 1645 **Group Art Unit Examiner Name** Unassigned 5906 Confirmation No. 2833-113 7 Attorney Docket Number of 1 Sheet

			U.S. PATE	NT DOCUMENTS	
		U.S. Patent D	ocument	Name of Patentee or Applicant	Date of Publication of Cited Document
Examiner Initials*	Cite No.1	Number	Kind Code ² (if known)	of Cited Document	MM-DD-YYYY
	1	5,168,225		YAMAZAKI et al.	12-01-1992
	2	5,324,658		COX et al.	06-28-1994
	3	5,393,669		BROWN	02-28-1995
	4	5,627,044		BROWN	05-06-1997
	5	5,698,401		FESIK et al.	12-16-1997
 	6	5,804,390		FESIK et al.	09-08-1998
	7	5,817,474		BROWN	10-06-1998
	8	5,891,643		FESIK et al.	04-06-1999
	9	5,989,827		FESIK et al.	11-23-1999
	10	6,111,066		ANDERSON III et al.	08-29-2000
	11	6,333,149	B1	SEM	12-25-2001
	12	6,335,196		ANDERSON III et al.	01-01-2002
	13	6,340,578		ANDERSON III et al.	01-22-2002
	14	6,376,253		ANDERSON III et al.	04-23-2002
	15	6,882,939	B2	HOMANS et al.	04-19-2005
	16	2003/0119109	A1	VAN DEN BURG et al.	06-26-2003
		1			

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code. ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language translation is attached. AB indicates that only an English language abstract is attached.

-					Con	nplete if Known
					Application Number	10/574,967
	INFORMAT	TION DISC	LOSUI	RE	Filing Date	May 24, 2007
l	STATEME				First Named Inventor	Jonathan Miles BROWN
					Group Art Unit	1645
					Examiner Name	Unassigned
					Confirmation No.	5906
	Sheet	2	of	7	Attorney Docket Number	2833-113

			FOR	EIGN PATI	ENT DOCUMENTS		
Examiner Initials*	Cite No. ¹	Office ³	Foreign Patent Docur	Kind⁵	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁶
		Code	JP 2208579	(if known)	JEOL LTD.	08-20-1990	AB
	17		JP 4046143		HITACHI LTD.	02-17-1992	AB
	18		WO 9418339		MARTEK BIOSCIENCES CORP.	08-18-1994	
	20		WO 9848264	-	ABBOTT LAB.	10-29-1998	
	21	_	WO 9911589		MARTEK BIOSCIENCES CORP.	03-11-1999	
	22		WO 03053910		JAPAN SCIENCE & TECH CORP.	07-03-2003	АВ
		 					
							┼-
		<u> </u>					
	<u> </u>	 				 	
	 	 					<u> </u>
			<u> </u>				
	-	 					
	+	 	<u> </u>				
Examiner Signature					Date Considered		

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code. ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language translation is attached. AB indicates that only an English language abstract is attached.

				Con	Complete if Known		
				Application Number	10/574,967		
INFORMA	ATION DISC	LOSU	RE	Filing Date	May 24, 2007		
STATEMENT BY APPLICANT				First Named Inventor	Jonathan Miles BROWN		
				Group Art Unit	1645		
				Examiner Name	Unassigned		
				Confirmation No.	5906		
 Sheet	3	of	7	Attorney Docket Number	2833-113		

.

		NON PATENT LITERATURE DOCUMENTS	Γ-
Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	23	Al-Hashimi et al., "Variation of Molecular Alignment as a Means of Resolving Orientational Ambiguities in Protein Structures From Dipolar Couplings," J. Magn. Reson. 143:402-406, 2000.	
	24	Appelt et al., "Design of Enzyme Inhibitors Using Iterative Protein Crysallographic Analysis," J. of Med. Chem. 34(7):1925-1934, 1991.	_
*	25	Archer et al., "Transforming Growth Factor ß1: NMR Signal Assignments of the Recombinant Protein Expressed and Isotopically Enriched Using Chinese Hamster Ovary Cells," Biochemistry 32:1152-1163, 1993.	
	26	Archer et al., "Transforming Growth Factor ß1: Secondary Structure as Determined by Heteronuclear Magnetic Resonance Spectroscopy," Biochemistry 32:1164-1171, 1993.	
	27	Battiste et al., "Utilization of Site-Directed Spin Labeling and High-Resolution Heteronuclear Nuclear Magnetic Resonance for Global Fold Determination of Large Proteins with Limited Nuclear Overhauser Effect Data," Biochemistry 39:5355-5365, 2000.	
	28	Chaykovski et al., "Methyl Side-Chain Dyanmics in Proteins Using Selective Enrichment With a Single Isotopomer," J. Am. Chem. Soc. 125:15767-15771, 2003.	
	29	Coughlin et al., "Improved Resolution and Sensitivity of Triple-Resonance NMR Methods for the Structural Analysis of Proteins by Use of a Backbone-Labeling Strategy," J. Am. Chem. Soc. 121:11871-11874, 1999.	
	30	Driscoll et al., "Structure of Domain 1 of rat T Lymphocyte CD2 Antigen," Nature 353:762-765, 1991.	
	31	Duthaler, "Recent Developments in the Stereoselective Synthesis of α-Aminoacids," Tetrahedron Lett. 50(6):1539 -1650, 1994.	
	32	Eichele et al., "Nitrogen-14 Coupled Dipolar-Chemical Shift ¹³ C NMR Spectra of the Amide Fragment of Peptides in the Solid State," J. Phys. Chem. 97:8909-8916, 1993.	
	33	Feeney, "NMR Studies of Interactions of Ligands With Dihydrofolate Reductase," Biochem. Pharmacol. 40(1):141-152, 1990.	
	34	Freund et al., "Structural and Dynamic Properties of the F_{ν} Fragment and the Single-Chain F_{ν} Fragment of an Antibody in Solution Investigated by Heteronuclear Three-Dimensional NMR Spectroscopy," Biochemistry 33:3296-3303, 1994.	
	35	Gardner et al., "Global Folds of Highly Deuterated, Methyl-Protonated Proteins by Multidimensional NMR," Biochemistry 36(6):1389-1401, 1997.	

				Con	nplete if Known
				Application Number	10/574,967
INFORM	ATION DISC	LOSU	₹E	Filing Date	May 24, 2007
STATEM	ENT BY API	PLICA	TP	First Named Inventor	Jonathan Miles BROWN
				Group Art Unit	1645
				Examiner Name	Unassigned
				Confirmation No.	5906
Sheet	4	of	7	Attorney Docket Number	2833-113

.

	36	Gardner et al., "Production and Incorporation of ¹⁵ N, ¹³ C, ² H (¹ H-δ1 Methyl) Isoleucine Into Proteins for Multidimensional NMR Studies," J. Am. Chem. Soc. 119:7599-7600, 1997
	37	Giesen et al., "Determination of Protein Global Folds Using Backbone Residual Dipolar Coupling and Long-Range NOE Restraints," J. Biomol. NMR 25:63-71, 2003.
	38	Giesen et al., "¹H-Filtered Correlation Experiments for Assignment and Determination of Coupling Constants in Backbone Labelled Proteins," J. Biomol. NMR 22:21-26, 2002.
<u>.</u>	39	Giesen et al., "Measurement of One-Bond ¹ H ^α - ¹³ C ^α Couplings in Backbone-Labelled Proteins," J. Biomol. NMR 19:255-260, 2001.
	40	Goto et al., "A Robust and Cost-Effective Method for the Production of Val, Leu, Ile (δ1) Methyl-Protonated ¹⁵ N-, ¹³ C-, ² H-Labeled Proteins," J. Biomol. NMR 13:369-374, 1999.
	41	Goto et al., "New Developments in Isotope Labeling Strategies for Protein Solution NMR Spectroscopy," Curr. Opin. Struc. Biol. 10:585-592, 2000.
	42	Grzesiek et al., " ¹³ C Line Narrowing by ² H Decoupling in ² H/ ¹³ C/ ¹⁵ N-Enriched Proteins, Application to Triple Resonance 4D J Connectivity of Sequential Amides," J. Am. Chem. Soc. 115:4369-4370, 1993.
	43	Hansen et al., "A Practical Method for Uniform Isotopic Labeling of Recombinant Proteins in Mammalian Cells," Biochemistry 31(51):12713-12718, 1992.
	44	Hajduk et al., "NMR-Based Screening of Proteins Containing ¹³ C-Labeled Methyl Groups," J. Am. Chem. Soc. 122:7898-7904, 2000.
	45	Ikura et al., "A Novel Approach for Sequential Assignment of ¹ H, ¹³ C, and ¹⁵ N Spectra of Larger Proteins: Heteronuclear Triple-Resonance Three-Dimensional NMR Spectroscopy. Application of Calmodulin," Biochemistry 29:4659-4667, 1990.
	46	Ishima et al., "Transverse ¹³ C Relaxation of CHD ₂ Methyl Isotopmers to Detect Slow Conformational Changes of Protein Side Chains," J. Am. Chem. Soc. 121:11589-11590, 1999.
	47	Ishima et al., "Comparison of Methyl Rotation Axis Order Parameters Derived from Model- Free Analyses of ² H and ¹³ C Longitudinal and Transverse Relaxation Rates Measured in the Same Protein Sample," J. Am. Chem. Soc. 123:6164-6171, 2001.
	48	Jakoby et al., "Ligand-Protein Electrostatic Interactions Govern the Specificity of Retinol- and Fatty Acid-Binding Proteins," Biochemistry 32:872-878, 1993.
	49	Kay et al., "Four-Dimensional Heteronuclear Triple-Resonance NMR Spectroscopy of Interleukin-1ß in Solution," Science 249:411-414, 1990.
	50	Kent, "Chemical Synthesis of Peptides and Proteins," Ann. Rev. Biochem. 57:957-989, 1988.

				Con	Complete if Known		
				Application Number	10/574,967		
INFORMATION DISCLOSURE				Filing Date	May 24, 2007		
STATEMENT BY APPLICANT			TV	First Named Inventor	Jonathan Miles BROWN		
				Group Art Unit	1645		
				Examiner Name	Unassigned		
				Confirmation No.	5906		
Sheet	5	of	7	Attorney Docket Number	2833-113		

51	Lankiewicz et al., "Synthesis of Amino Acid Derivatives Substituted in the Backbone with Stable Isotopes for Application in Peptide Synthesis," J. Chem. Soc. Perkin Trans. 2503-2510, 1994.
52	Lavanant et al., "Formation and Fragmentation of α-Amino Acids Complexed by Cu ⁺ ," J. Mass Spectrometry 32:1037-1049, 1997.
53	Lee et al., "Comparison of ² H and ¹³ C NMR Relaxation Techniques for the Study of Protein Methyl Group Dynamics in Solution," J. Am. Chem. Soc. 121:2891-2902, 1999.
54	LeMaster et al., "Preparative-Scale Isolation of Isotopically Labeled Amino Acids," Anal. Biochem. 122:238-247, 1982.
55	LeMaster, "Deuteration in Protein Proton Magnetic Resonance," Meth. Enzymol. 177:23-43, 1989.
56	LeMaster, "Uniform and Selective Deuteration in Two-Dimensional NMR of Proteins," Annu. Rev. Biophys. Chem. 19:243-266, 1990.
57	Lerche et al., "Pulse Sequences for Measurement of One-Bond ¹⁵ N- ¹ H Coupling Cosntants in the Protein Backbone," J. Magn. Res. 140:259-263, 1999.
58	Lian et al., "Protein-Ligand Interactions: Exchange Processes and Determination of Ligand Conformation and Protein-Ligand Contacts," Meth. Enzymol. 239:657-739, 1994.
59	Lustbader et al., "Expression of Human Chorionic Gonadotropin Uniformly Labeled With NMR Isotopes in Chinese Hamster Ovary Cells: an Advance Toward Rapid Determination of Glycoprotein Structures," J. Biomol. NMR 7:295-304, 1996.
60	Martin et al., "Stereoselective Synthesis of L-[1- ¹³ C], L-[2- ¹³ C] and L-[¹⁵ N] Amino Acids," Isotopes Environ. Health Stud. 32:15-19, 1996.
61	Mittermaier et al., "Analysis of Deuterium Relaxation-Derived Methyl Axis Order Parameters and Correlation With Local Structure," J. Biomol. NMR 13:181-185, 1999.
62	Mueller et al., "Global Folds of Proteins With Low Densities of NOEs Using Residual Dipolar Couplings: Application to the 370-Residue Maltodextrin-Binding Protein," J. Mol. Biol. 300:197-212, 2000.
63	Muhandiram et al., "Measurement of 2 H T $_1$ and T $_{1p}$ Relaxation Times in Uniformly 13 C-Labeled and Fractionally 2 H-Labeled Proteins in Solution," J. Am. Chem. Soc. 117:11536-11544, 1995.
64	Nyassé et al., "First Synthesis of a Fully [15N, 13C] Backbone-Labelled Peptide," 15N NMR Spectrum of Corresponding Leu-Enkephalin," J. Chem. Soc., Chem. Commun. 2005-2006, 1994.
65	Oppolzer et al., "Asymmetric Alkylations of a Sultam-Derived Glycinate Equivalent: Practical Preparation of Enantiomerically Pure α-Amino Acids," Tetrahedron Lett. 30(44):6009-6010, 1989.

	-			Con	nplete if Known
				Application Number	10/574,967
INFORM	ation Disc	LOSU	RE	Filing Date	May 24, 2007
STATEM	ENT BY API	PLICA	4T	First Named Inventor	Jonathan Miles BROWN
				Group Art Unit	1645
				Examiner Name	Unassigned
				Confirmation No.	5906
Sheet	6	of	7	Attorney Docket Number	2833-113

. ,

66	Oppolzer et al., "201. Asymmetric Alkylations of a Sultam-Derived Glycine Equivalent: Practical Preparation of Enantiomerically Pure α-Amino Acids," Helvetica Chimica Acta 77:2363-2380, 1994.
67	Oppolzer et al., "153. Asymmetric Synthesis of α -Amino Acids and α -N-Hydroxyamino Acids from N-Acylbornane-10,2-sultams: 1-Chloro-1-nitrosocyclohexane as a Practical [NH ₂ +] Equivalent," Helvetica Chimica Acta 75:1965-1978, 1992.
68	Ottiger et al., "Determination of Relative N-H ^N , N-C', C ^α -C', C ^α -C', C ^α -H ^α Effective Bond Lengths in a Protein by NMR in a Dilute Liquid Crystalline Phase," J. Am. Chem. Soc. 120:12334-12341, 1998.
 69	Perutz et al., "Structure of Hemoglobin: A Three-Dimensional Fourier Synthesis at 5.5- Å. Resolution, Obtained by X-ray Analysis," Nature 185:416-422, 1960.
70	Pervushin et al., "Attenuated T ₂ Relaxation by Mutual Cancellation of Dipole-Dipole Coupling and Chemical Shift Anisotropy Indicates an Avenue to NMR Structures of Very Large Biological Macromolecules in Solution," Proc. Natl. Acad. Sci. <i>USA</i> 94:12366-12371, 1997.
 71	Powers et al., " ¹ H, ¹⁵ N, ¹³ C, and ¹³ CO Assignments of Human Interleukin-4 Using Three- Dimensional Double- and Triple-Resonance Heteronuclear Magnetic Resonance Spectroscopy," Biochemistry 31:4334-4346, 1992.
 72	Ragnarsson, "Proteinogenic Amino Acids Labelled With ¹⁵ N and or ¹³ C for Application in Peptide Synthesis: A Short Review with a Comprehensive List of Published Derivatives," J. Peptide Science 3:149-156, 1995.
73	Rosen et al., "Selective Methyl Group Protonation of Predeuterated Proteins," J. Mol. Biol. 263:627-636, 1996.
74	Schöllkopf, "Enantioselective Synthesis of Nonproteinogenic Amino Acids," Top. Curr. Chem, 109(65):65-84, 1983.
 75	Schwarzinger et al., "Sequence-Dependent Correction of Random Coil NMR Chemical Shifts," J. Am. Chem. Soc. 123:2970-2978, 2001.
 76	Shuker et al., "Discovering High-Affinity Ligands for Proteins: SAR by NMR," Science 274:1531-1534, 1996.
77	Skrynnikov et al., "Probing Slow Time Scale Dynamics at Methyl-Containing Side Chains in Proteins by Relaxation Dispersion NMR Measurements: Application to Methionine Residues in a Cavity Mutant of T4 Lysozyme," J. Am. Chem. Soc. 123:4556-4566, 2001.
 78	Soloshonok et al., "Asymmetric Synthesis of Phosphorus Analogues of Dicarboxylic α-Amino Acids," J. Chem. Soc. Perkin Trans. 1:1525-1529, 1992.
 79	Weller et al., "Structural and Conformational Analysis of Glycan Moieties <i>in Situ</i> on Isotopically ¹³ C, ¹⁵ N-Enriched Recombinant Human Chorionic Gonadotropin," Biochemistry 35:8815-8823, 1996.

				Com	Complete if Known		
				Application Number	10/574,967		
INFORMATION DISCLOSURE				Filing Date	May 24, 2007		
STATEMENT BY APPLICANT			IT	First Named Inventor	Jonathan Miles BROWN		
				Group Art Unit	1645		
				Examiner Name	Unassigned		
				Confirmation No.	5906		
Sheet	7	of	7	Attorney Docket Number	2833-113		

	-
80	Winkler et al., "Principles and Results of Stable Isotope Labelling of L-α-Aminoacids by Combined Chemical and Enzymatic Methods," Isotopes Environ. Health Stud. 31:161-190, 1995.
81	Yang et al., "A Study of Protein Side-Chain Dynamics From New ² H Auto-Correlation and ¹³ C Cross-Correlation NMR Experiments: Application to the N-terminal SH3 Domain from drk," J. Mol. Biol. 276:939-954, 1998.
82	Zhang et al., "A Novel Class of Chemically Modified Iodo-Containing Resins: Design, Synthesis and Application to Mass Spectrometry-Based Proteome Analysis," J. Mass Spectrometry 39:447-457, 2004.
83	Zhou et al., "NMR Studies of the Phosphotransfer Domain of the Histidine Kinase CheA from Escherichia coli: Assignments, Secondary Structure, General Fold, and Backbone Dynamics," Biochemistry 34:13858-13870, 1995.
Examiner Signature	Date Considered

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1Unique citation designation number. 2Applicant is to place a check mark here if English language Translation is attached.

1456646